



Exchange 2010

April / May Outage Operations Review

CIO Council Review
July 11, 2012



NORTHROP GRUMMAN

Agenda

- Outage summaries
- May 30 outage
- Implementation overview
- Problem management background
- Follow-up actions

Outage Summaries

IT infrastructure program experienced multiple long duration outages in April and May 2012 on Exchange 2010:

- April 28 outage duration ~ 13.5 hours
 - Majority of impact was to DOE, DOF, DSS and DBHDS. However, 25K mail users were intermittently impacted.
 - Symantec End Point Protection was disabled and affected mail servers rebooted
- May 30 outage duration ~ 6 hours
 - 25K mail users were unable to send or receive email
 - Heartbeat communications between CESC and SWESC Exchange 2010 servers were impacted during a peak period of traffic on the network point to point link

Exchange 2010 significantly different architecture than Exchange 2003

May 30 Outage

- Exchange 2010 heartbeat communications are different than Exchange 2003
- Require dedicated bandwidth to ensure reliable heartbeat connectivity
 - Increased network bandwidth into core routers between CESC and SWESC
 - Dedicated 300 Mb of bandwidth for Exchange traffic between CESC and SWESC



A. Database Availability Group 1 (DAG1) is made up of 12 Exchange 2010 mailbox servers. 8 Servers at CESC and 4 Servers at SWESC.

B. There is a "heart beat" between each of the servers at CESC and their partners at SWESC

C. There is a Primary Active Manager (PAM) that manages the cluster for DAG1

Implementation Overview

- Exchange 2010 required change to an active/active configuration between CESC/SWESC to support disaster recovery requirements
 - Partnered with Microsoft and EMC to design solution
 - Design was reviewed by Northrop Grumman and VITA enterprise architecture teams
- Completely new server and storage area network (SAN) hardware procured
 - Partnered with Microsoft and EMC to install all software, stress test and certify the environment to vendor best practices
- Completed four-week pilot phase with Northrop Grumman and VITA customers
- Partnered with Microsoft to perform health check after pilot phase

Significant planning and testing prior to customer migrations

Problem Management Background

- CESC to SWESC heartbeat communications and server failovers functionality were tested throughout pilot phase
- Migrations of agencies from Exchange 2003 added load to Exchange 2010 environment and presented heartbeat communication issues
- Opened a problem management ticket prior to May 30 outage to address heartbeat communication issues
 - Reviewed network traffic associated with Exchange 2010

Problem management actions taken prior to the outage

Follow-up Actions

- NO heartbeat issues since corrective actions of May 31
- Additional customer migrations completed ~ 41K total users
- Upgraded application to Exchange 2010 Service Pack 2, Rollup 3
 - Addresses recent public folder issues
- Implementing Symantec Endpoint Protection Version 12
 - Addresses April 28 outage cause

Will be able to identify, respond to and prevent another major outage

Follow-up Actions (continued)

- Multiple actions underway to maintain Exchange 2010 stability
 - Implemented health check scripts on Exchange 2010
 - Add enhanced network monitoring to supporting switches
 - Evaluating additional monitoring tools for Exchange 2010
 - Completing an end-to-end review of network devices supporting Exchange 2010, Blackberry, Good, Outlook Web App

Will be able to identify, respond to and prevent another major outage

Follow-up Actions (continued)

Questions?